

CLAIMS

1. A gyro sensor characterized by comprising:

a magnetostrictive member made of a magnetostrictive

5 element;

a drive coil for vibrating the magnetostrictive member by
controlling the intensity of a magnetic field applied to the
magnetostrictive member; and.

detecting means for detecting changes in magnetic

10 permeability or remnant magnetization of the magnetostrictive
member, wherein changes in angular speed around a rotation
axis that is orthogonal to a direction in which the
magnetostrictive member vibrates are detected as changes in
magnetic permeability or remnant magnetization of the
15 magnetostrictive member caused by deformation thereof, which
is brought about by the Coriolis force.

2. The gyro sensor according to claim 1, wherein

the drive coil vibrates the magnetostrictive member at a
resonant frequency.

20 3. The gyro sensor according to claim 1 or 2, wherein:

the detecting means includes a magnetic resistance
element; and

the changes in magnetic permeability or remnant
magnetization are detected as changes in electromotive force
25 of the magnetic resistance element.

4. The gyro sensor according to claim 1 or 2, wherein;
the detecting means includes a detection coil surrounding
the magnetostrictive member; and

the changes in magnetic permeability or remnant
5 magnetization are detected as changes in inductance of the
detection coil.

5. The gyro sensor according to any one of claims 1 to 4,
wherein:

a magnetic biasing magnet is tightly attached to one side
10 of the magnetostrictive member; and

a soft magnetic member around which the drive coil is
disposed is tightly attached to an opposite side of the
magnetostrictive member.

6. The gyro sensor according to any one of claims 1 to 5,
15 wherein

the magnetostrictive member is a giant magnetostrictive
member made of a giant magnetostrictive element.